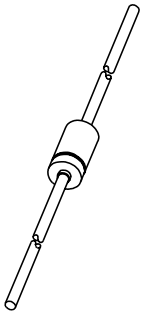
查询KTY84-1 series供应商

DATA SHEET



KTY84-1 series
Silicon temperature sensors

Product specification
Supersedes data of 1998 Apr 09

2000 Aug 25

Philips
Semiconductors

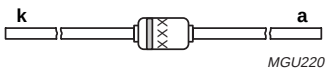
PHILIPS

Silicon temperature sensors KTY84-1 series

DESCRIPTION

The temperature sensors in the KTY84-1 series have a positive temperature coefficient of resistance and are suitable for use in measurement and control systems over a temperature range of –40 to +300 °C. The sensors are encapsulated in the SOD68 (DO-34) package. The leads are nickel plated.

Tolerances of 0.5% or other special selections are available on request.



The black band indicates the negative connection.

The marking provides type identity.

The sensor must be operated with the lower potential at the marked connection.

Fig.1 Simplified outline (SOD68; DO-34).

MARKING

TYPE NUMBER	MARKING CODE
KTY84-130	KTY84L
KTY84-150	KTY84M
KTY84-151	KTY84O
KTY84-152	KTY84P

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
R_{100}	sensor resistance	T_{amb} = 100 °C; I_{cont} = 2 mA			
	KTY84-130		970	1030	Ω
	KTY84-150		950	1050	Ω
	KTY84-151		950	1000	Ω
	KTY84-152		1000	1050	Ω
T_{amb}	ambient operating temperature		–40	+300	°C

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{cont}	continuous sensor current	in free air; T_{amb} = 25 °C; note 1	–	10	mA
		in free air; T_{amb} = 300 °C	–	2	mA
T_{amb}	ambient operating temperature		–40	+300	°C
T_{stg}	storage temperature		–55	+300	°C

Note

1. For temperatures greater than 200 °C, a sensor current of I_{cont} = 2 mA must be used.

CHARACTERISTICS

T_{amb} = 100 °C, in liquid, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R_{100}	sensor resistance	I_{cont} = 2 mA				
	KTY84-130		970	–	1030	Ω
	KTY84-150		950	–	1050	Ω
	KTY84-151		950	–	1000	Ω
	KTY84-152		1000	–	1050	Ω
TC	temperature coefficient		–	0.61	–	%/K
R_{250}/R_{100}	resistance ratio	T_{amb} = 250 °C and 100 °C	2.111	2.166	2.221	
R_{25}/R_{100}	resistance ratio	T_{amb} = 25 °C and 100 °C	0.595	0.603	0.611	
τ	thermal time constant; note 1	in still air	–	20	–	s
		in still liquid; note 2	–	1	–	s
		in flowing liquid; note 2	–	0.5	–	s
	rated temperature range		–40	–	+300	°C

Notes

1. The thermal time constant is the time taken for the sensor to reach 63.2% of the total temperature difference. For example, if a sensor with a temperature of 25 °C is moved to an environment with an ambient temperature of 100 °C, the time for the sensor to reach a temperature of 72.4 °C is the thermal time constant.
2. Inert liquid, e.g. FC43 manufactured by the 3M company.

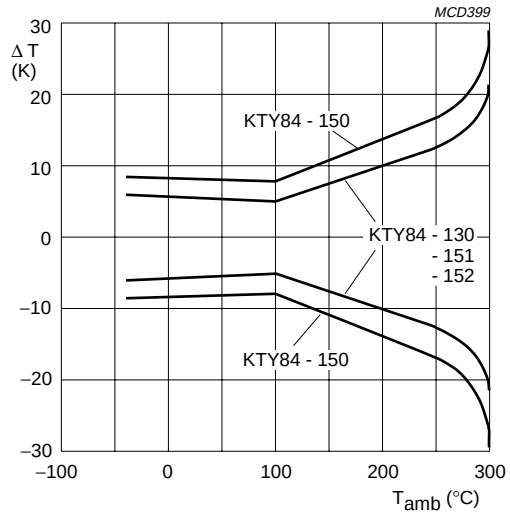
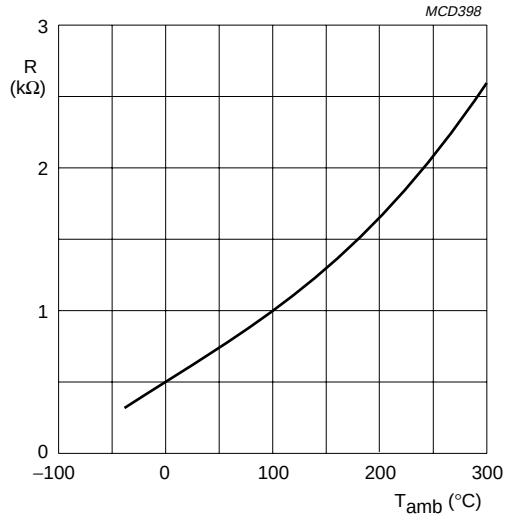


Fig.2 Maximum expected temperature error (ΔT).



I_{cont} = 2 mA.

Fig.3 Sensor resistance as a function of ambient temperature; average values.

Table 1 Ambient temperature, corresponding resistance, temperature coefficient and maximum expected temperature error for KTY84-130 and KTY84-150

I_{cont} = 2 mA.

AMBIENT TEMPERATURE		TEMP. COEFF.	KTY84-130				KTY84-150			
(°C)	(°F)	(%/K)	RESISTANCE (Ω)			TEMP. ERROR (K)	RESISTANCE (Ω)			TEMP. ERROR (K)
			MIN.	TYP.	MAX.		MIN.	TYP.	MAX.	
–40	–40	0.84	340	359	379	±6.48	332	359	386	±8.85
–30	–22	0.83	370	391	411	±6.36	362	391	419	±8.76
–20	–4	0.82	403	424	446	±6.26	394	424	455	±8.7
–10	14	0.80	437	460	483	±6.16	428	460	492	±8.65
0	32	0.79	474	498	522	±6.07	464	498	532	±8.61
10	50	0.77	514	538	563	±5.98	503	538	574	±8.58
20	68	0.75	555	581	607	±5.89	544	581	618	±8.55
25	77	0.74	577	603	629	±5.84	565	603	641	±8.54
30	86	0.73	599	626	652	±5.79	587	626	665	±8.53
40	104	0.71	645	672	700	±5.69	632	672	713	±8.5
50	122	0.70	694	722	750	±5.59	679	722	764	±8.46
60	140	0.68	744	773	801	±5.47	729	773	817	±8.42
70	158	0.66	797	826	855	±5.34	781	826	872	±8.37
80	176	0.64	852	882	912	±5.21	835	882	929	±8.31
90	194	0.63	910	940	970	±5.06	891	940	989	±8.25
100	212	0.61	970	1000	1030	±4.9	950	1000	1050	±8.17
110	230	0.60	1029	1062	1096	±5.31	1007	1062	1117	±8.66
120	248	0.58	1089	1127	1164	±5.73	1067	1127	1187	±9.17
130	266	0.57	1152	1194	1235	±6.17	1128	1194	1259	±9.69
140	284	0.55	1216	1262	1309	±6.63	1191	1262	1334	±10.24
150	302	0.54	1282	1334	1385	±7.1	1256	1334	1412	±10.8
160	320	0.53	1350	1407	1463	±7.59	1322	1407	1492	±11.37
170	338	0.52	1420	1482	1544	±8.1	1391	1482	1574	±11.96
180	356	0.51	1492	1560	1628	±8.62	1461	1560	1659	±12.58
190	374	0.49	1566	1640	1714	±9.15	1533	1640	1747	±13.2
200	392	0.48	1641	1722	1803	±9.71	1607	1722	1837	±13.85
210	410	0.47	1719	1807	1894	±10.28	1683	1807	1931	±14.51
220	428	0.46	1798	1893	1988	±10.87	1760	1893	2026	±15.19
230	446	0.45	1879	1982	2085	±11.47	1839	1982	2125	±15.88
240	464	0.44	1962	2073	2184	±12.09	1920	2073	2226	±16.59
250	482	0.44	2046	2166	2286	±12.73	2003	2166	2329	±17.32
260	500	0.42	2132	2261	2390	±13.44	2087	2261	2436	±18.15
270	518	0.41	2219	2357	2496	±14.44	2172	2357	2543	±19.36
280	536	0.38	2304	2452	2600	±15.94	2255	2452	2650	±21.21
290	554	0.34	2384	2542	2700	±18.26	2333	2542	2751	±24.14
300	572	0.29	2456	2624	2791	±22.12	2404	2624	2844	±29.05

Table 2 Ambient temperature, corresponding resistance, temperature coefficient and maximum expected temperature error for KTY84-151 and KTY84-152

I_{cont} = 2 mA.

AMBIENT TEMPERATURE		TEMP. COEFF.	KTY84-151				KTY84-152			
(°C)	(°F)	(%/K)	RESISTANCE (Ω)			TEMP. ERROR (K)	RESISTANCE (Ω)			TEMP. ERROR (K)
			MIN.	TYP.	MAX.		MIN.	TYP.	MAX.	
–40	–40	0.84	332	350	368	±5.97	350	368	386	±5.82
–30	–22	0.83	362	381	399	±5.84	381	400	419	±5.69
–20	–4	0.82	394	414	433	±5.72	415	435	455	±5.57
–10	14	0.80	428	449	469	±5.62	451	472	492	±5.46
0	32	0.79	464	486	507	±5.51	489	511	532	±5.35
10	50	0.77	503	525	547	±5.41	530	552	574	±5.25
20	68	0.75	544	566	589	±5.31	573	595	618	±5.14
25	77	0.74	565	588	611	±5.25	595	618	641	±5.08
30	86	0.73	587	610	633	±5.2	618	641	665	±5.03
40	104	0.71	632	656	679	±5.08	665	689	713	±4.91
50	122	0.70	679	704	728	±4.96	715	740	764	±4.78
60	140	0.68	729	754	778	±4.83	767	792	817	±4.64
70	158	0.66	781	806	831	±4.68	822	847	872	±4.5
80	176	0.64	835	860	885	±4.53	879	904	929	±4.34
90	194	0.63	891	916	942	±4.37	938	963	989	±4.17
100	212	0.61	950	975	1000	±4.19	1000	1025	1050	±3.99
110	230	0.60	1007	1036	1064	±4.58	1060	1089	1117	±4.37
120	248	0.58	1067	1099	1131	±4.99	1123	1155	1187	±4.77
130	266	0.57	1128	1164	1199	±5.41	1187	1223	1259	±5.19
140	284	0.55	1191	1231	1271	±5.84	1254	1294	1334	±5.62
150	302	0.54	1256	1300	1345	±6.3	1322	1367	1412	±6.07
160	320	0.53	1322	1372	1421	±6.77	1392	1442	1492	±6.53
170	338	0.52	1391	1445	1500	±7.25	1464	1519	1574	±7.01
180	356	0.51	1461	1521	1581	±7.75	1538	1599	1659	±7.51
190	374	0.49	1533	1599	1664	±8.27	1614	1681	1747	±8.02
200	392	0.48	1607	1679	1751	±8.81	1692	1765	1837	±8.55
210	410	0.47	1683	1761	1839	±9.36	1772	1852	1931	±9.09
220	428	0.46	1760	1846	1931	±9.93	1854	1940	2026	±9.66
230	446	0.45	1839	1932	2024	±10.51	1937	2031	2125	±10.23
240	464	0.44	1920	2021	2121	±11.11	2022	2125	2226	±10.83
250	482	0.44	2003	2112	2220	±11.73	2110	2220	2329	±11.44
260	500	0.42	2087	2205	2321	±12.42	2198	2318	2436	±12.12
270	518	0.41	2172	2298	2424	±13.37	2288	2416	2543	±13.06
280	536	0.38	2257	2391	2525	±14.79	2376	2513	2650	±14.46
290	554	0.34	2335	2479	2622	±16.98	2459	2606	2751	±16.61
300	572	0.29	2406	2558	2710	±20.61	2533	2689	2844	±20.18

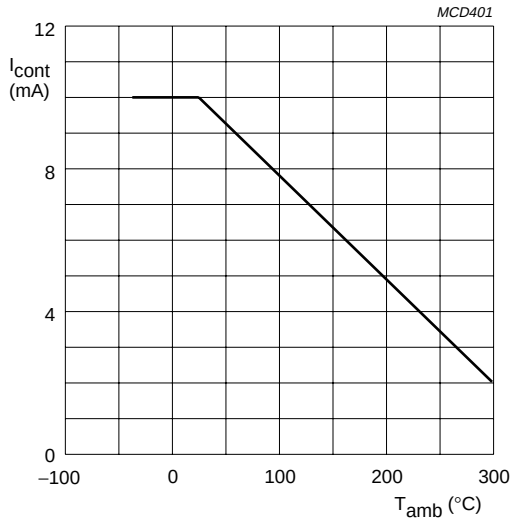
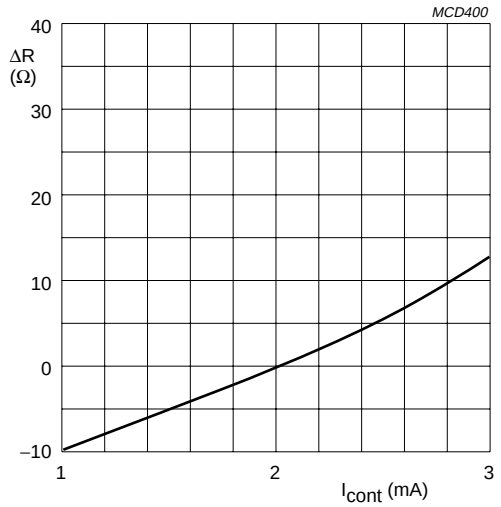


Fig.4 Maximum operating current for safe operation.

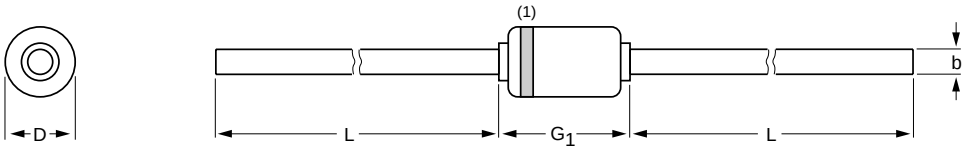


T_{amb} = 100 °C.

Fig.5 Deviation of sensor resistance as a function of operating current in still liquid.

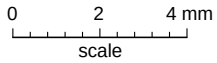
PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads **SOD68**



DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G_1 max.	L min.
mm	0.55	1.6	3.04	25.4



Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD68		DO-34				97-06-09

DATA SHEET STATUS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS [1]
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

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Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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